

IN THE CLAIMS:

Please cancel claims 15-20 without prejudice or disclaimer of the subject matter thereof.

The following is a complete listing of claims in this application.

1. (currently amended) A poison resistant combustible gas sensing element comprising:

an electric heating element;

a first layer coated on the electric heating element and comprising a precious metal catalyst supported on a porous oxide, the precious metal catalyst catalyzing combustion of a combustible gas to be detected by the element; and

a second layer overlaying the first layer, and comprising a catalytic compound which is not substantially active toward combustible gases, but which provides sites which are reactive with and which are capable of trapping gases and vapors which poison the precious metal catalyst, said catalytic compound being supported on a porous oxide.

2. (previously presented) The sensing element of claim 1, wherein the catalytic compound is at least one compound selected from the group consisting of:

a) metal oxides selected from the group consisting of oxides of vanadium (V), chromium (Cr), manganese (Mn), iron (Fe), cobalt (Co), nickel (Ni), copper (Cu), molybdenum (Mo), tin (Sn), antimony (As), lead (Pb), bismuth (Bi), ruthenium (Ru), cadmium (Cd), rhenium (Re), osmium (Os), and iridium (Ir);

b) solid acids selected from the group consisting of tungsten oxide/zirconia, sulfated zirconia, niobium oxide, silica-alumina, mesoporous aluminosilicates, mesoporous sulfated zirconia and acid-activated clays;

c) solid bases selected from the group consisting of

magnesia, alkaline-doped alumina and alkaline-doped zeolites;
and

d) metal-loaded zeolites and clays.

3. (previously presented) The sensing element of claim 2, wherein the metal oxide is supported on a porous oxide selected from the group consisting of alumina, zirconia, silica, yttrium-stabilized zirconia, cerium-stabilized zirconia and lanthanum-stabilized zirconia.

4. (previously presented) The sensing element of claim 1, wherein the heating element comprises a helical filament heater.

5. (previously presented) The sensing element of claim 1, wherein the heating element comprises an electric film heater.

6. (previously presented) The sensing element of claim 1, wherein the catalytic compound of the second layer is in solid form.

7. (previously presented) The sensing element of claim 1, wherein the catalytic compound of the second layer is in powder form.

8. (previously presented) The sensing element of claim 1, wherein the second layer comprises multiple layers of catalytic compounds.

9. (previously presented) The sensing element of claim 1, wherein the second layer comprises an external filter.

10. (previously presented) The sensing element of claim 9, wherein the external filter comprises a catalytic compound supported on paper, or in the form of a blank or monolith.

11. (previously presented) The sensing element of claim 1, wherein the second layer comprises at least one layer comprising a precious metal catalyst supported on a porous oxide, and at least one layer comprising a said catalytic compound supported on a porous oxide.

12. (currently amended) An apparatus for detecting a combustible gas comprising:

a gas sensing element including an electric heating element, a first layer coated on the electric heating element and comprising a precious metal catalyst supported on a porous oxide, the precious metal catalyst catalyzing combustion of a combustible gas to be detected by the sensing element, and a second layer overlaying the first layer, and comprising a catalytic compound which is not substantially active toward combustible gases, but which provides sites which are reactive with and which are capable of trapping gases which poison the precious metal catalyst, said catalytic compound being supported on a porous oxide; and

a compensating element comprising an electric heating element, said compensating element not including a catalyst capable of catalyzing combustion of a combustible gas to be detected by the sensing element.

13. (previously presented) The apparatus of claim 12, further comprising an electrical circuit to which the sensing element and compensating element are connected, said electrical circuit being constructed and arranged to detect changes in resistance of the sensing element and compensating element.

14. (previously presented) The apparatus of claim 13, wherein the electrical circuit comprises a Wheatstone bridge including a voltmeter.

Claims 15-20 (canceled).